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IMPLEMENTATION OF THE ENVIRONMENTAL MANAGEMENT SYSTEMS (EMS) AS A TOOL TO THE ACHIEVEMENT OF SUSTAINABLE DEVELOPMENT GOALS

В соответствии с требованиями международных стандартов ISO 14001 приводится опыт разработки и внедрения системы экологического менеджмента на уровне отдельной организации – Университета Аберти Данди (Шотландия).

The concept of sustainable development implies satisfaction of human needs in present without damaging the ability to satisfy the needs of future generations [1]. If put simply, this direction of human development contribute to achieving the balance between economical growth and sustainability within the global ecosystem. Experience of the developed countries that are much further ahead on their way to sustainability, shows that this way is the right way to go. As it has been proved by hundreds of organizations and businesses in Europe, those activities concerned with long-term planning and considering the environmental aspects at the heart of their strategy turned out to be more economically effective. There are definitely certain key drivers for European businesses to deal with the environmental problems in the way described. The most important of them is the pressure of international community. New upcoming pieces of legislation issued by the EU encourage implementation of the corresponding national laws keep the action in progress from one side. Customer pressure promoted by the EU makes its influence on the other. These pressures, forming a cramp around any legal activity, make it impossible to avoid the responsibility. Complying with the relevant environmental legislation is a serious issue nowadays as it is very stringent and is not expected to mitigate in future.

A lot of companies have found their life buoy, implementing and running Environmental Management Systems (EMS). Moreover, if an EMS implemented is sufficient it is able to bring about a wide range of benefits to the business, including monetary aspects and the business's image. An *environmental management system* is the system by which a company controls the activities, products and processes that cause, or could cause environmental impacts of its operations [2]. That implies managing company's environmental 'aspects' that could include energy and raw materials use, water consumption, and emissions to air and waste disposal. Environmental management systems can be operated as in-house systems, for example, an en-

ergy saving program within a company while some businesses tent to implement externally certified, formal systems like ISO 14001 or EMAS.

As a new step towards the sustainable development an EMS is beneficial and not only to the environment but also to the business itself. A good EMS should achieve the following:

– Cost reduction associated with material and energy savings and waste disposal costs;

– Reduced liabilities through better management of environmental risks such as chemical spillage, soil and groundwater contamination and contractors' activities;

– Regulatory compliance achieved consistently, not just by chance;

– Motivated workforce through focused training, feedback and performance related rewards;

– Provision of assurance to corporate, shareholders, consumers, joint venture partners and regulatory authorities.

To illustrate how the environmental management system works and in what way it is important, there is a following case study of the Initial Environmental Review as one of the first stages of the EMS implementation to ISO 14001 standard in the University of Abertay Dundee (UAD), Scotland. Followed by the Review general findings and conclusions have been made to provide necessary proposals regarding the most vital environmental aspects of the UAD operations including the suggestions on a relevant environmental management programme. It shouldn't be surprising that a university has been picked as an example instead of an industrial enterprise. As an environmental issue is so urgent these days, any kind of human activity should be taken into account considering its adverse affect on the environment. The University of Abertay Dundee is not an exception from the list. While some people consider it obvious, other might have a vague or no idea of the fact that academic activity could also contribute to the environmental deterioration.

In the Initial Environmental Review the organization thoroughly examines its current environmental performance, finds out the gaps between its activities and the corresponding legislation and sets necessary objectives and targets to achieve the continual improvement. Main University's environmental aspects according to the its main operation are vividly described [Figure]. There is one or several environmental 'impacts' to every aspect described. For example, the UAD operates a boiler house fueled with natural gas to satisfy the heating needs. This activity causes several aspects, which are the following:

– Emissions of CO and CO_2;

- Emissions of flue gases;
- Use of non-renewable resource for energy (natural gas);
- Emissions of NO_X,

The environmental 'impacts' in this case are also correspondingly identified. CO and CO_2 emitted by the boiler house are the gases produced from combustion of organic matter, and they are estimated to be responsible for 50% of greenhouse gases and global warming. CO is poisonous if inhaled and responsible for more severe chemical poisonings than any other single agent. Emissions of flue gases contribute to the greenhouse effect, the use of natural gas leads to the depletion of non-renewable fossil fuel resources.

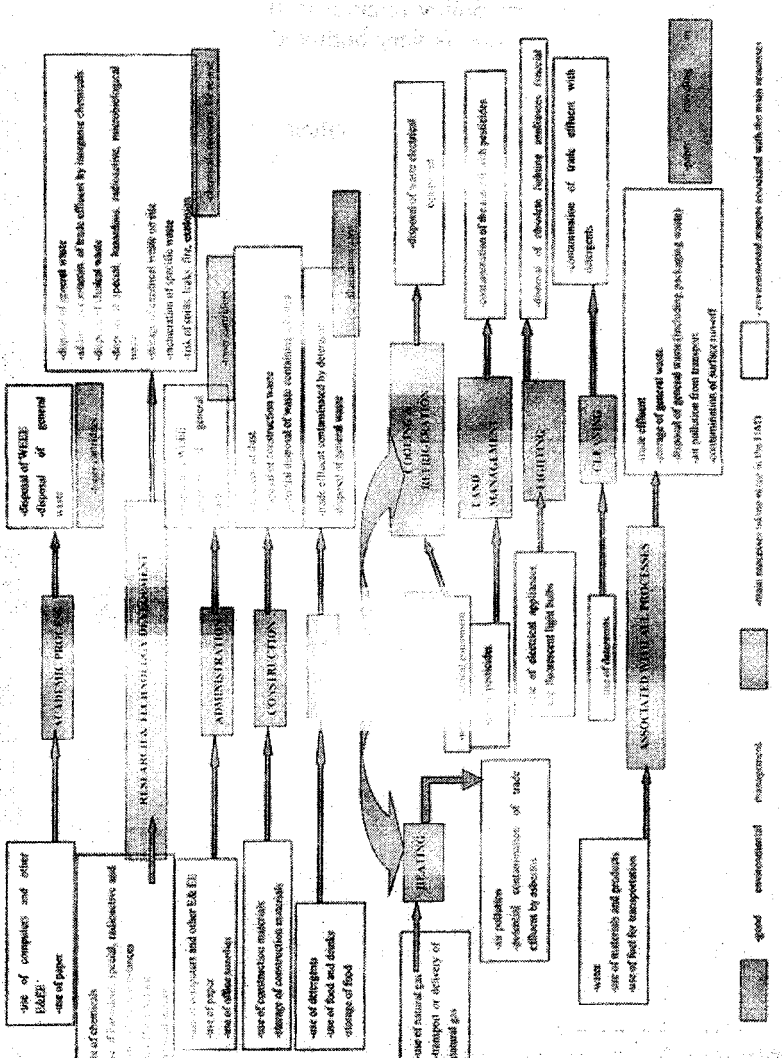
As a number of environmental aspects defined is usually great, it would be impossible and economically insufficient to start managing them all at once. Thus, it is necessary to prioritize them weighting their potential impact on the environment and take first steps to control those having the biggest one. To assess the aspects' significance a special methodology has been employed, where every aspect has been evaluated against the following criteria:

- Importance of the Impact
- Severity of the Impact
- Availability of the relevant legislation.

It has been mentioned above that on of the key drivers for implementing the EMS is compliance with all legislation and regulations that apply to the process and products of the organization. Therefore, all relevant pieces of legislation should be collected and their availability will influence the significance of the aspect.

First steps to be taken by the organization towards improving its performance continually are generally set in the list of objectives and targets. In the case study of the University of Abertay only those objectives and targets concerned with the most significant environmental aspects are described. Analyzing the list of environmental objectives and targets, a conclusion could be drawn that the major issue of the University is to manage the boiler house operations. There are few environmental aspects relevant to this activity, described earlier. It should be mentioned that all of them have the highest score in the significance list.

It is commonly known now that energy production and consumption involve environmental considerations, and the major concerns are air quality and the depletion of non-renewable resources of energy. The University of Abertay Dundee has a considerable contribution to the all above issues. Though it has improved its environmental performance lately by switching



Analysis of environmental management practice at UAD

the heating system to natural gas to fuel the boilers, however, it is still not enough. As there is no clear policy relating to the University boiler efficiency, natural gas consumption is very high and has increased due to the addition of new library building. No energy conservation strategy has been introduced in this regard. Rooms in several buildings have no proper ventilation, and some of the room radiators have their controlling valves broken. In addition to that, boiler house in general does not have any operation regime to adjust to the specific conditions such as temperature variations and the University's timetable. Managing the boiler operations in this way will bring about additional serious problems to UAD, including complying with stringent legislation. There are number of laws that affect the activity at the moment: Environmental Protection Act (1990), Part 1; Clean Air Act (1993); Finance Act (2000). But there are still more to be added in the list, including Pollution Prevention and Control Regulations, Climate Change Levy etc. Thus it is important to deal with the problem right now to avoid additional costs and potential legislative non-compliance. The objective has been set in this regard to reduce emissions of air pollutants basically by reducing University's natural gas consumption. It would involve thorough investigation of energy efficiency measures, reviewing status of boiler efficiency program and energy reduction measures. The Maintenance Department should seriously think about improving the operation regime of the boiler house at the first place. Besides, consideration should be given to the repair of radiators and other appliances, which have not been working properly. Insulation needs to be checked throughout the University buildings especially during the refurbishing process.

It should be taken into account that the right approach to these aspects will bring about noticeable benefits in a form of savings and avoiding excessive costs.

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